

## CLAIMS

- [1] An embossed release paper for synthetic leather production, comprising at least paper as a support and an ionizing radiation cured film provided on the paper, the upper part of the cured film having been embossed, characterized in that
- the ionizing radiation cured film has been formed by applying an ionizing radiation to a coating liquid comprising at least an ionizing radiation curing composition having a softening point of 40°C or above, to cure the ionizing radiation curing composition, the ionizing radiation curing composition comprising
- a product of a reaction of an isocyanate compound with an (meth)acrylic compound containing an (meth)acryloyl group and reactive with the isocyanate compound, or
- a product of a reaction of an isocyanate compound with an (meth)acrylic compound containing an (meth)acryloyl group and reactive with the isocyanate compound, and a compound free from an (meth)acryloyl group and reactive with an isocyanate group.
- [2] The embossed release paper according to claim 1, wherein the ionizing radiation cured film further comprises 1 to 70% by weight of a film forming resin.
- [3] The embossed release paper according to claim 1 or 2, wherein the ionizing radiation cured film further comprises 0.5 to 20% by weight of a silicone compound.
- [4] The embossed release paper according to any one of claims 1 to 3, wherein a seal layer comprising an inorganic pigment and a film forming resin is provided on the surface of the support.
- [5] The embossed release paper according to any one of claims 1 to 4, wherein the ionizing radiation cured film has a multilayer structure of at least two layers.
- [6] The embossed release paper according to claim 5,

wherein, in the ionizing radiation cured film having a multilayer structure of at least two layers, 0.5 to 50% by weight of an inorganic pigment is contained in one or at least two layers.

- [7] The embossed release paper according to claim 5 or 6, wherein, in the ionizing radiation cured film having a multilayer structure of at least two layers, 0.5 to 50% by weight of an inorganic pigment is contained in the lowermost layer provided on the support side.
- [8] The embossed release paper according to any one of claims 5 to 7, wherein, in the ionizing radiation cured film having a multilayer structure of at least two layers, 0.5 to 20% by weight of a silicone compound is contained in one or at least two layers.
- [9] The embossed release paper according to any one of claims 5 to 8, wherein, in the ionizing radiation cured film having a multilayer structure of at least two layers, 0.5 to 20% by weight of a silicone compound is contained in the uppermost layer provided on the side remote from the support.
- [10] The embossed release paper according to any one of claims 5 to 9, wherein, in the ionizing radiation cured film having a multilayer structure of two or more layers,  
0.5 to 50% by weight of an inorganic pigment is contained in the lowermost layer provided on the support side, and  
0.5 to 20% by weight of a silicone compound is contained in the uppermost layer provided on the side remote from the support.
- [11] The embossed release paper according to any one of claims 5 to 9, wherein, in the ionizing radiation cured film having a multilayer structure of two or more layers,  
0.5 to 50% by weight of an inorganic pigment is contained in the lowermost layer provided on the support side, and  
0.5 to 20% by weight of a silicone compound is

contained in each layer.

[12] The embossed release paper according to any one of claims 1 to 11, wherein the paper as the support is neutral paper.

[13] The embossed release paper according to any one of claims 1 to 12, wherein the paper as the support has been embossed.

[14] The embossed release paper according to claim 3, wherein the proportion of silicone-derived silicon present on the surface of the ionizing radiation cured film is 5 to 30%, and the proportion of silicone-derived silicon present on the surface of the ionizing radiation cured film after the repetition of the production of a synthetic leather using the release paper by 5 times is not less than 5%.

[15] A process for producing an embossed release paper according to any one of claims 1 to 14, characterized by comprising the steps of:

coating a coating liquid onto a surface of a support at a coverage of 1 to 40 g/m<sup>2</sup> on a dry basis to form a coating film;

vaporizing the solvent from the coating film to dry the coating film;

embossing either the dried coating film or the support and the dried coating film simultaneously; and

applying an ionizing radiation to the coating film to form an ionizing radiation cured film,

the coating liquid comprising at least an ionizing radiation curing composition having a softening point of 40°C or above, the ionizing radiation curing composition comprising

a product of a reaction of an isocyanate compound with an (meth)acrylic compound containing an (meth)acryloyl group and reactive with the isocyanate compound, or

a product of a reaction of an isocyanate compound with an (meth)acrylic compound containing an

(meth)acryloyl group and reactive with the isocyanate compound, and a compound free from an (meth)acryloyl group and reactive with an isocyanate group,

the coating liquid having been diluted with 10 to 1000 parts by weight of the solvent based on 100 parts by weight on a solid basis of the coating liquid.

- [16] A process for producing a synthetic leather using the embossed release paper according to any one of claims 1 to 14, characterized by comprising the steps of:

coating a polyurethane resin composition onto the embossed ionizing radiation cured film and heat drying the coating to form a skin layer;

laminating a backing fabric onto the skin layer through an adhesive to form a synthetic leather layer; and

separating the release paper from the synthetic leather layer.

- [17] The process according to claim 16, wherein the adhesive is a two-pack curing type polyurethane resin.

- [18] The process according to claim 16, wherein, in the step of laminating the backing fabric, after an adhesive is coated onto the skin layer to form a coating which is then dried, a backing fabric is laminated onto the adhesive by hot lamination.

- [19] A process for producing a synthetic leather using an embossed release paper according to any one of claims 1 to 14, characterized by comprising the steps of:

coating a polyurethane resin composition onto the embossed ionizing radiation cured film and heat drying the coating to form a skin layer;

laminating a wet intermediate layer onto the skin layer and contact bonding the skin layer to the wet intermediate layer by a hot roll from the release paper side to form a synthetic leather layer; and

cooling the synthetic leather layer and then separating the release paper.

- [20] A process for producing a synthetic leather using

an embossed release paper according to any one of claims 1 to 14, characterized by comprising the steps of:

coating a vinyl chloride resin composition onto the embossed ionizing radiation cured film and heat drying the coating to form a skin layer;

coating an expandable vinyl chloride resin composition onto the skin layer and heating the coating to form an intermediate layer;

laminating a backing fabric onto the intermediate layer through an adhesive to form a synthetic leather layer; and

separating the release paper from the synthetic leather layer.

[21] A process for producing a synthetic leather using an embossed release paper according to any one of claims 1 to 14, characterized by comprising the steps of:

coating a polyurethane resin composition onto the embossed ionizing radiation cured film and heat drying the coating to form a skin layer;

coating an expandable vinyl chloride resin composition onto the skin layer and heating the coating to form an intermediate layer;

laminating a backing fabric onto the intermediate layer through an adhesive to form a synthetic leather layer; and

separating the release paper from the synthetic leather layer.

[22] A process for producing a synthetic leather using an embossed release paper according to any one of claims 1 to 14, characterized by comprising the steps of:

coating a polyurethane resin composition onto the embossed ionizing radiation cured film and heat drying the coating to form a skin layer;

coating an expandable vinyl chloride resin composition onto the skin layer and heating the coating to form an intermediate layer;

laminating a backing fabric onto the intermediate layer through an adhesive to form a synthetic leather layer; and

separating the release paper from the synthetic leather layer.

[23] A synthetic leather characterized by being produced by using an embossed release paper according to claim 14, the proportion of silicone-derived silicon present on the synthetic leather in its separated surface obtained by separating the release paper being not more than 20%.

[24] The synthetic leather according to claim 23, wherein the release paper has been used a plurality of times.

[25] A synthetic leather produced by a process according to any one of claims 17 to 22.

[26] A support for use in an embossed release paper for synthetic leather production, the support comprising a base paper having a clay coating layer on its one side, characterized in that

the base paper has such a heat resistance that the tensile strength as measured after standing at 230°C for 3 min by the measuring method specified in JIS P 8113 is maintained at not less than 10 kN/m at least in the machine direction and the tear strength as measured after standing at 230°C for 3 min by the measuring method specified in JIS P 8116 is maintained at not less than 500 mN in both the machine direction and cross direction, and

the clay coat layer has a smoothness of not less than 100 sec as measured by the measuring method specified in JIS P 8119 and has been formed so that surface irregularities derived from pulp fibers constituting the base paper are absorbed.

[27] A support according to claim 26, wherein the base paper has been made by using a mixed pulp composed of a hardwood pulp and a softwood pulp and the content of the hardwood pulp in the mixed pulp is 50 to 90%.

- [28] The support according to claim 25 or 27, wherein the base paper is a neutral paper sized with an alkylketene dimmer.
- [29] The support according to any one of claims 26 to 28, wherein the base paper has a basis weight of 100 to 200 g/m<sup>2</sup>.
- [30] The support according to any one of claims 26 to 29, wherein the clay coat layer has a coverage of 5 to 40 g/m<sup>2</sup>.
- [31] A process for producing a release paper using a support for an embossed release paper for synthetic leather production according to any one of claims 26 to 30, characterized by comprising the steps of:
- providing an uncured ionizing radiation curing resin film on a clay coat layer in a support;
  - embossing the uncured ionizing radiation curing resin film; and
  - after the step of embossing, applying an ionizing radiation to the ionizing radiation curing resin film to cure the film.
- [32] An embossed release paper for synthetic leather production, produced by a process according to claim 31.